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## TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

		Application Number	10/800471
		Filing Date	March 15, 2004
		First Named Inventor	Warren M. Ewert
		Art Unit	N/A
		Examiner Name	Not Yet Assigned
Total Number of Pages in This Submission	1	Attorney Docket Number	60605-33890USPT

### ENCLOSURES (Check all that apply)

<input type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance communication to Technology Center (TC)
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Terminal Disclaimer	<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Request for Refund	PTO/SB 08 (4 pages) Postcard
<input checked="" type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> CD, Number of CD(s) _____	
<input type="checkbox"/> Certified Copy of Priority Document(s)		
<input type="checkbox"/> Response to Missing Parts/ Incomplete Application		
<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		
Remarks		

### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	JENKENS & GILCHRIST, A PROFESSIONAL CORPORATION Robert L. Abdon, Ph.D.
Signature	
Date	June 15, 2004



PTO/SB/92 (08-03)

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Application No. (if known): 10/800471

Attorney Docket No.: 60605-33890USPT

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Date



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IDS (Citation) by Applicant (4 pages)  
Information Disclosure Statement (4 pages)  
Transmittal (1 page)  
Postcard



Docket No.: 60605-33890USPT  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Warren M. Ewert et al.

Application No.: 10/800471

Confirmation No.:

Filed: March 15, 2004

Art Unit: N/A

For: PROCESS TO DECREASE OR ELIMINATE  
CORROSION FROM THE  
DECOMPOSITION OF HALIDE  
CONTAINING OLEFIN CATALYSTS

Examiner: Not Yet Assigned

**INFORMATION DISCLOSURE STATEMENT (IDS)**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed within three months of the U.S. filing date (37 CFR 1.97(b)(1)).

The non-English language references are listed in the following table. We've also provided the English language translation of the portion that caused each reference to be submitted. This information can be found in a separate table attached herewith.

For. Doc No.	Ctry	Patentee/Applicant	Publication Date
1256968	CN	Li et al.	June 21, 2000
07010780	JP	Tamura et al.	January 13, 1995
08183747	JP	Tamura et al.	July 16, 1996
08333407	JP	Iwanaga et al.	December 17, 1996

02102710	JP	Yoshida et al.	April 9, 2002
02066329	JP	Yoshida et al.	March 5, 2002
07215896	JP	Sato et al.	August 15, 1995
06263822	JP	Urata et al.	September 20, 1994
07017878	JP	Tanaka et al.	January 20, 1995
07018013	JP	Tanaka et al.	January 20, 1995
07118173	JP	Kawashima et al.	May 9, 1995
07118327	JP	Kawashima et al.	May 9, 1995
07118328	JP	Kawashima et al.	May 9, 1995
07118174	JP	Kawashima et al.	May 9, 1995
07118175	JP	Kawashima et al.	May 9, 1995
07118324	JP	Kawashima et al.	May 9, 1995
07118325	JP	Kawashima et al.	May 9, 1995
07118326	JP	Kawashima et al.	May 9, 1995
07149671	JP	Kawashima et al.	June 13, 1995
07149672	JP	Kawashima et al.	June 13, 1995
07149673	JP	Kawashima et al.	June 13, 1995
07149674	JP	Kawashima et al.	June 13, 1995
07149675	JP	Kawashima et al.	June 13, 1995
07149676	JP	Kawashima et al.	June 13, 1995
07149677	JP	Kawashima et al.	June 13, 1995
07157512	JP	Urata et al.	June 20, 1995
08059732	JP	Urata et al.	March 5, 1996
08134131	JP	Araki et al.	May 28, 1996
08151409	JP	Araki et al.	June 11, 1996
08239330	JP	Araki et al.	September 17, 1996
08239331	JP	Araki et al.	September 17, 1996
08239418	JP	Araki et al.	September 17, 1996
08245429	JP	Araki et al.	September 24, 1996
08245430	JP	Araki et al.	September 24, 1996
08245431	JP	Araki et al.	September 24, 1996
08283330	JP	Araki et al.	October 29, 1996
08283332	JP	Araki et al.	October 29, 1996
08301921	JP	Araki et al.	November 19, 1996
08301922	JP	Araki et al.	November 19, 1996
08301923	JP	Araki et al.	November 19, 1996
08301924	JP	Araki et al.	November 19, 1996
08301925	JP	Araki et al.	November 19, 1996
09012627	JP	Arake et al.	January 14, 1997
09143213	JP	Araki et al.	June 3, 1997
09176228	JP	Urata et al.	July 8, 1997
09188634	JP	Urata et al.	July 22, 1997
09194400	JP	Araki et al.	July 29, 1997
10036433	JP	Urata et al.	February 10, 1998
10036435	JP	Urata et al.	February 10, 1998
10045634	JP	Araki et al.	February 17, 1998

10045638	JP	Araki et al.	February 17, 1998
10045833	JP	Araki et al.	February 17, 1998
10087517	JP	Araki et al.	September 11, 1996
10087518	JP	Araki et al.	April 7, 1998
10218799	JP	Araki et al.	August 18, 1998
11060511	JP	Araki et al.	March 2, 1999
11060626	JP	Araki et al.	August 26, 1997
10007595	JP	Okuri et al.	January 13, 1998
10007594	JP	Okuri et al.	January 13, 1998
10007593	JP	Okuri et al.	January 13, 1998
09268135	JP	Mimura et al.	October 14, 1997
09268134	JP	Mimura et al.	October 14, 1997
09268133	JP	Mimura et al.	October 14, 1997
09262480	JP	Okuri et al.	October 7, 1997
09194524	JP	Okuri et al.	July 29, 1997
09176229	JP	Aoyama et al.	July 8, 1997
09087318	JP	Okuri et al.	March 31, 1997
09040710	JP	Okuri et al.	February 10, 1997
08325317	JP	Okuri et al.	December 10, 1996
08325318	JP	Okuri et al.	December 10, 1996
08325319	JP	Okuri et al.	December 10, 1996

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure

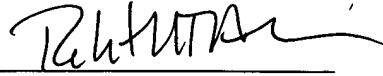
Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this Information Disclosure statement shall not be construed to be an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 10-0447, under Order No. 60605-33890USPT.

Dated: June 15, 2004

Respectfully submitted,

By   
Robert L. Abdon, Ph.D.

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PTO/SB/08a/b (08-03)

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Substitute for form 1449A/B/PTO				<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				Application Number	10/800471
<i>(Use as many sheets as necessary)</i>				Filing Date	March 15, 2004
				First Named Inventor	Warren M. Ewert
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
Sheet	1	of	4	Attorney Docket Number	60605-33890USPT

<b>U.S. PATENT DOCUMENTS</b>					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (# known)			
AA**	US-5491272		09-17-1993	Tanaka et al.	
AB**	US-5557026		09-17-1996	Tanaka et al.	
AC**	US-5750816		05-12-1998	Araki et al.	
AD**	US-5750817		05-12-1998	Tanaka et al.	
AE**	US-5856612		01-29-1997	Araki et al.	
AF**	US-5910619		06-08-1999	Urata et al.	
AG**	US-6133495		10-17-2000	Urata et al.	
AH**	US-5550305		08-27-1996	Feng-jung Wu	
AI**	US-5744677		04-28-1998	Feng-jung Wu	
AJ**	US-5811618		09-22-1998	Feng-jung Wu	
AK**	US-5968866		10-19-1999	Feng-jung Wu	
AL**	US-6031145		02-29-2000	Commereuc et al.	
AM*	US-6103654		08-15-2000	Commereuc et al.	
*					
AN**	US-6221986		04-24-2001	Commereuc et al.	
AO**	US-4668838		05-26-1987	John R. Briggs	
AP**	US-4777315		10-11-1988	Levine et al.	
AQ**	US-4853356		08-01-1989	John R. Briggs	
AR**	US-5731487		03-24-1998	Tamura et al.	
AS**	US-5856610		01-05-1999	Tamura et al.	
AT**	US-6127301		10-03-2000	Iwanaga et al.	
AU**	US-6337297		01-08-2002	Mimura et al.	
AV**	US-6344594		02-05-2002	Sen et al.	
AW*	US-2002/0035029		03-21-2002	Yoshida, et al.	
*					
AX**	US-2001/0023281		09-20-2001	Commereuc et al.	
AY**	US-5198563		03-30-1993	Reagen et al.	
AZ**	US-5288823		02-22-1994	Reagen et al.	
AA1	US-5331070		07-19-1994	Pettijohn et al.	
**					
AB1	US-5331104		07-19-1994	Reagen et al.	
**					
AC1	US-5340785		08-23-1994	Reagen et al.	
**					
AD1	US-5360879		11-01-1994	Reagen et al.	
**					
AE1	US-5376612		12-27-1994	Reagen et al.	
**					
AF1*	US-5382738		01-17-1995	Reagen et al.	
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AG1	US-5393719		02-28-1995	Pettijohn et al.	
**					
AH1	US-5399539		03-21-1995	Reagen et al.	
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AI1*	US-5438027		08-01-1995	Reagen et al.	
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Examiner Signature		Date Considered	
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Substitute for form 1449A/B/PTO				<i>Complete if Known</i>	
				Application Number	10/800471
				Filing Date	March 15, 2004
				First Named Inventor	Warren M. Ewert
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
Sheet	2	of	4	Attorney Docket Number	60605-33890USPT

	AJ1*	US-5451645	09-19-1995	Reagen et al.	
	AK1**	US-5470926	11-28-1995	Reagen et al.	
	AL1*	US-5523507	06-04-1996	Reagen et al.	
	AM1**	US-5543375	10-08-1996	Lashier et al.	
	AN1**	US-5563312	10-08-1996	Knudsen et al.	
	AO1**	US-5689028	11-18-1997	Lashier et al.	
	AP1**	US-5763723	06-09-1998	Reagen et al.	
	AQ1**	US-5786431	07-28-1998	Reagen et al.	
	AR1**	US-5814575	09-29-1998	Reagen et al.	
	AS1**	US-5856257	01-05-1999	Freeman et al.	
	AT1*	US-5859303	01-12-1999	Mark E. Lashier	
	AU1**	US-5919996	07-06-1999	Freeman et al.	
	AV1**	US-5986153	11-16-1999	Kallenbach et al.	
	AW1**	US-6380451	04-30-2002	Kreischer et al.	
	AX1**	US-6455648	09-24-2002	Freeman et al.	
	AY1**	US-20010053742	12-20-2001	Knudsen et al.	

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)			
BB	CN-1256968-A		06-21-2000	Li et al.	
BC	EP-1110930-A1		06-27-2001	Commereuc et al.	
BD	EP-537609-A2		04-21-1993	Feng-jung Wu	
BE	JP-07010780-A2		01-13-1995	Tamura et al.	
BF	JP-08183747-A2		07-16-1996	Tamura et al.	
BG	JP-08333407		12-17-1996	Iwanaga et al.	
BH	JP-02102710-A		04-09-2002	Yoshida et al.	
BI	JP-02066329-A		03-05-2002	Yoshida et al.	
BJ	JP-07215896-A2		08-15-1995	Sato et al.	
BK	JP-06263822-A2		09-20-1994	Urata et al.	
BL	JP-07017878-A2		01-20-1995	Tanaka et al.	
BM	JP-07018013-A2		01-20-1995	Tanaka et al.	
BN	JP-07118173-A2		05-09-1995	Kawashima et al.	

Examiner Signature		Date Considered	
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Substitute for form 1449A/B/PTO				<b>Complete If Known</b>	
				Application Number	10/800471
				Filing Date	March 15, 2004
				First Named Inventor	Warren M. Ewert
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
Sheet	3	of	4	Attorney Docket Number	60605-33890USPT

	BO	JP-07118327-A2	05-09-1995	Kawashima et al.	
	BP	JP-07118328-A2	05-09-1995	Kawashima et al.	
	BQ	JP-07118174-A2	05-09-1995	Kawashima et al.	
	BR	JP-07118175-A2	05-09-1995	Kawashima et al.	
	BS	JP-07118324-A2	05-09-1995	Kawashima et al.	
	BT	JP-07118325-A2	05-09-1995	Kawashima et al.	
	BU	JP-07118326-A2	05-09-1995	Kawashima et al.	
	BV	JP-07149671-A2	06-13-1995	Kawashima et al.	
	BW	JP-07149672-A2	06-13-1995	Kawashima et al.	
	BX	JP-07149673-A2	06-13-1995	Kawashima et al.	
	BY	JP-07149674-A2	06-13-1995	Kawashima et al.	
	BZ	JP-07149675-A2	06-13-1995	Kawashima et al.	
	BA1	JP-07149676-A2	06-13-1995	Kawashima et al.	
	BB1	JP-07149677-A2	06-13-1995	Kawashima et al.	
	BC1	JP-07157512-A2	06-20-1995	Urata et al.	
	BD1	JP-08059732-A2	03-05-1996	Urata et al.	
	BE1	JP-08134131-A2	05-28-1996	Araki et al.	
	BF1	JP-08151409-A2	06-11-1996	Araki et al.	
	BG1	JP-08239330-A2	09-17-1996	Araki et al.	
	BH1	JP-08239331-A2	09-17-1996	Araki et al.	
	BI1	JP-08239418-A2	09-17-1996	Araki et al.	
	BJ1	JP-08245429-A2	09-24-1996	Araki et al.	
	BK1	JP-08245430-A2	09-24-1996	Araki et al.	
	BL1	JP-08245431-A2	09-24-1996	Araki et al.	
	BM1	JP-08283330-A2	10-29-1996	Araki et al.	
	BN1	JP-08283332-A2	10-29-1996	Araki et al.	
	BO1	JP-08301921-A2	11-19-1996	Araki et al.	
	BP1	JP-08301922-A2	11-19-1996	Araki et al.	
	BQ1	JP-08301923-A2	11-19-1996	Araki et al.	
	BR1	JP-08301924-A2	11-19-1996	Araki et al.	
	BS1	JP-08301925-A2	11-19-1996	Araki et al.	
	BT1	JP-09012627-A2	01-14-1997	Arake et al.	
	BU1	JP-09143213-A2	06-03-1997	Araki et al.	
	BV1	JP-09176228-A2	07-08-1997	Urata et al.	
	BW1	JP-09188634-A2	07-22-1997	Urata et al.	
	BX1	JP-09194400-A2	07-29-1997	Araki et al.	
	BY1	JP-10036433-A2	02-10-1998	Urata et al.	
	BZ1	JP-10036435-A2	02-10-1998	Urata et al.	
	BA2	JP-10045634-A2	02-17-1998	Araki et al.	
	BB2	JP-10045638	02-17-1998	Araki et al.	
	BC2	JP-10045833-A2	02-17-1998	Araki et al.	
	BD2	JP-10087517-A2	09-11-1996	Araki et al.	
	BE2	JP-10087518-A2	04-07-1998	Araki et al.	
	BF2	JP-10218799-A2	08-18-1998	Araki et al.	
	BG2	JP-11060511-A2	03-02-1999	Araki et al.	
	BH2	JP-11060626-A2	08-26-1997	Araki et al.	
	BI2	JP-10007595-A2	01-13-1998	Okuri et al.	
	BJ2	JP-10007594-A2	01-13-1998	Okuri et al.	
	BK2	JP-10007593-A2	01-13-1998	Okuri et al.	

Examiner Signature		Date Considered	
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Substitute for form 1449A/B/PTO				Complete If Known	
				Application Number	10/800471
				Filing Date	March 15, 2004
				First Named Inventor	Warren M. Ewert
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
Sheet	4	of	4	Attorney Docket Number	60605-33890USPT

BL2	JP-09268135-A2	10-14-1997	Mimura et al.		
BM2	JP-09268134-A2	10-14-1997	Mimura et al.		
BN2	JP-09268133-A2	10-14-1997	Mimura et al.		
BO2	JP-09262480-A2	10-07-1997	Okuri et al.		
BP2	JP-09194524-A2	07-29-1997	Okuri et al.		
BQ2	JP-09176229-A2	07-08-1997	Aoyama et al.		
BR2	JP-09087318-A2	03-31-1997	Okuri et al.		
BS2	JP-09040710-A2	02-10-1997	Okuri et al.		
BT2	JP-08325317-A2	12-10-1996	Okuri et al.		
BU2	JP-08325318-A2	12-10-1996	Okuri et al.		
BV2	JP-08325319-A2	12-10-1996	Okuri et al.		
BW2	WO-0204119-A1	01-17-2002	Duncan Frank Wass		
BX2	WO-9415940-A1	07-21-1994	Satou et al.		
BY2	WO-02/066404-A1	08-29-2002	Deckers et al.		
BZ2	WO-01/68572-A1	09-20-2001	Santi et al.		
BA3	WO-01/38270-A1	05-31-2001	Dixon et al.		
BB3	WO-01/83447-A2	11-08-2001	Dixon et al.		
BC3	WO-02/083306-A2	10-24-2002	Grove et al.		
BD3	WO-02/066405-A1	08-29-2002	Deckers et al.		

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. \*\*CITE NO.: Those patent(s) or publication(s) which are marked with an double asterisk ("\*) next to the Cite No. are not supplied because they were previously cited by or submitted to the Office in a prior application relied upon in this application for an earlier filing date under 35 U.S.C. 120. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS					
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			<input type="checkbox"/> <sup>2</sup>

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature	Date Considered
--------------------	-----------------

Patent #	Filing Date	Issue Date	Inventors	Abstract	Foreign Equivalents
JP 07010780 A2	23-Jun-93	13-Jan-95	Tamura, Mitsuhsisa; Ito, Yoshiaki; Uchida, Kenshi	Preparation of olefins with terminal double bond by trimerization of alkenes	
JP 08183747 A2	08-Jun-95	16-Jul-96	Tamura, Mitsuhsisa; Uchida, Kenshi; Iwanaga, Kiyoshi; Ito, Yoshiaki	Process for 1-hexene manufacture	EP 699648 A1 EP 699648 B1 R: BE, DE, FR, GB, IT, NL CA 2156789 AA CN 1128745 A CN 1057991 B
JP 083333407	08-Jun-95	17-Dec-96	Iwanaga, Seiji; Tamura, Mitsuhsisa; Shiraishi, Hiroyuki; Imai, Akio	<b>Manufacture of linear low-density polyethylene.</b> In situ type process.	
JP 02102710	29-Sep-00	09-Apr-02	Yoshida, Osamu; Okada, Kyusoku; Yamamoto, Toshihide; Sakae, Itaru	Trimerization catalyst of ethylene and uses of this catalyst trimerization method. Effect of pressure on tris(3,5-dimethyl-1-pyrazolyl)methane chromium(III) chloride catalyst system.	
JP 02066329 A	28-Aug-00	05-Mar-02	Yoshida, Osamu; Sakae, Itaru; Okada, Kyusoku; Yamamoto, Toshihide	Trimerization catalyst of ethylene and uses of this catalyst trimerization method. Effect of amine additives on tris(3,5-dimethyl-1-pyrazolyl)methane chromium(III) chloride catalyst system at low pressure.	

Patent #	Filing Date	Issue Date	Inventors	Abstract	# Claims	Foreign Equivalents
JP 07215896 A2	04-Feb-94	15-Aug-95	Sato, Haruhito; Suzuik, shintaro	<b>Manufacture of alpha-olefin oligomers.</b> 1,2 dimethoxyethane and Al tert-butoxide used as catalyst components.		
CN 1256968 A	09-Oct-99	21-Jun-00	Li, Dagang; Du, Xiangdong; Li, Tonglin	<b>Catalyst for trimerization of ethylene and its preparation.</b> The catalyst giving 1-hexene with high selectivity contains Cr compound, pyrrole derivative, Al alkyl, and accelerator at a mole ratio of, preferably, 1:2-6:50-200:1-30. The accelerator has a chemical formula of ... The accelerator is, preferably, o-trichloromethylfluorobenzene, o-trifluoromethylchlorobenzene, o-trichloromethylchlorobenzene, o-trifluoromethylfluorobenzene, III. The catalyst is prepared by mixing Cr compound and accelerator, and introducing the mixture to a heptane solution containing pyrrole derivative and Al alkyl under the conditions of trimerization of ethylene.		

JP 06263822 A2	15-Mar-93	20-Sep-94	Urata; Hisao; Oshiki, Toshuki; Aoshima, Noriyuki	Preparation of alpha-olefin polymers with low degree of polymerization. Used non-conjugated dienes.
JP 07017878 A2	01-Jul-93	20-Jan-95	Tanaka, Eiji; Urata; Hisao; Oshiki, Toshuki; Aoshima, Noriyuki	Oligomerization of alpha-olefins, especially trimerization of ethylene. Using pyrrole and benzene.
JP 0718013 A2	30-Jun-93	20-Jan-95	Tanaka, Eiji; Urata; Hisao; Oshiki, Toshuki; Aoshima, Noriyuki	Oligomerization of alpha-olefins, especially trimerization of ethylene
JP 07118173 A2	26-Oct-93	09-May-95	Kawashima; Riichiro; Nakamura, Hirofumi; Katsuki, Shunji	Low-molecular-weight alpha-olefin polymer compositions. Pyrrole provides high C4-C8 product composition.
JP 07118327 A2	26-Oct-93	09-May-95	Kawashima; Riichiro; Nakamura, Hirofumi; Iwade, Shinji	Preparation of low-molecular weight alpha-olefin polymers. Oligomers obtained without melting by product polymer.
JP 07118328 A2	26-Oct-93	09-May-95	Kawashima; Riichiro; Nakamura, Hirofumi; Iwade, Shinji	Preparation of low-molecular weight alpha-olefin polymers. Pyrrole used polymer removed by filtration.
JP 07118174 A2	26-Oct-93	09-May-95	Kawashima; Riichiro; Nakamura, Hirofumi	Preparation of alpha-olefins. Use of pyrrole.
JP 07118175 A2	26-Oct-93	09-May-95	Kawashima; Riichiro; Nakamura, Hirofumi; Katsuki, Shunji	Oligomerization of alpha-olefins with hydrogenation of part of oligomers for recycle as solvents.
JP 07118324 A2	26-Oct-93	09-May-95	Kawashima; Riichiro; Nakamura, Hirofumi; Katsuki, Shunji	Manufacture of granular or powdered ultra-high-molecular-weight polyethylene. Hexene catalyst for polymerization.
JP 07118325 A2	26-Oct-93	09-May-95	Kawashima; Riichiro; Nakamura, Hirofumi; Katsuki, Shunji	Manufacture of granular or powdered ultra-high-molecular-weight polyethylene. Hexene catalyst for polymerization.
JP 07118326 A2	26-Oct-93	09-May-95	Kawashima; Riichiro; Nakamura, Hirofumi; Iwade, Shinji	Manufacture of granular or powdered ultra-high-molecular-weight polyethylene. Hexene catalyst for polymerization.
JP 07149671 A2	30-Nov-93	13-Jun-95	Kawashima; Riichiro; Nakamura, Hirofumi	Manufacture of alpha-olefin oligomers. Centrifuging to remove byproduct polymers
JP 07149672 A2	30-Nov-93	13-Jun-95	Kawashima; Riichiro; Nakamura, Hirofumi; Katsuki, Shunji	Manufacture of 1-Hexene. Recycled solvent.
JP 07149673 A2	30-Nov-93	13-Jun-95	Kawashima; Riichiro; Nakamura, Hirofumi; Iwade, Shinji	Manufacture of alpha-olefin oligomers with recycle of liquid medium containing chromium catalyst. Oligomers separated by distillation and rest recycled to reactor.
JP 07149674 A2	30-Nov-93	13-Jun-95	Kawashima; Riichiro; Nakamura, Hirofumi; Katsuki, Shunji; Okano, Takeshi	Manufacture of highly purified alpha-olefin oligomers. Acid and alkali used to remove catalyst.
JP 07149675 A2	30-Nov-93	13-Jun-95	Kawashima; Riichiro; Nakamura, Hirofumi; Katsuki, Shunji; Iwade, Shinji	Manufacture of alpha-olefin oligomers with high yield and selectivity. Cr and Al not contacted before ethylene.
JP 07149676 A2	30-Nov-93	13-Jun-95	Kawashima; Riichiro; Nakamura, Hirofumi	Manufacture of alpha-olefin oligomers with reduced adhesion of byproduct polymers on reactor walls.
JP 07149677 A2	30-Nov-93	13-Jun-95	Hirofumi	Manufacture of 1-Hexene. High boiling solvent, degas and separate byproduct polymers.
JP 07157512 A2	07-Dec-93	20-Jun-95	Urata; Hisao; Oshiki, Toshuki; Aoshima, Noriyuki	Catalyst compositions for manufacture of alpha-olefin oligomers. Tris pentamethylphenylboron used.

JP 08059732 A2	01-Mar-95	05-Mar-96	Urata; Hisao; Aoshima, Noriyuki; Oshiki, Toshuki; Takahara, Jun; Iwade, Shinji; Namba, Yoshiaki Araki, Yoshitake; Nakamura, Hirofumi; Namba, Yoshiaki; Okano, Takeshi	Low-molecular-weight alpha-olefin polymers and manufacture thereof
JP 08134131 A2	10-Jul-95	28-May-96	Araki, Yoshitake; Nakamura, Hirofumi; Okano, Takeshi Araki, Yoshitake; Nakamura, Hirofumi; Iwade, Shinji; Namba, Yoshiaki; Okano, Takeshi	Manufacture of alpha-olefin oligomers in high yields with high selectivity and low catalytic activity loww with time.
JP 08151409 A2	29-Nov-94	11-Jun-96	Araki, Yoshitake; Nakamura, Hirofumi; Okano, Takeshi Araki, Yoshitake; Nakamura, Hirofumi; Iwade, Shinji; Namba, Yoshiaki; Okano, Takeshi	Manufacture of alpha-olefins by low-degree alpha-olefin polymerization. Ethylene with Cr before Al cpd mixed.
JP 08239330 A2	02-Mar-95	17-Sep-96	Yoshiaki; Okano, Takeshi Araki, Yoshitake; Nakamura, Hirofumi; Aoshima, Noriyuki; Nanba, Yoshiaki; Okano, Takeshi	Manufacture of alpha-olefin oligomers with chromium catalysts.
JP 08239331 A2	02-Mar-95	17-Sep-96	Araki, Yoshitake; Nakamura, Hirofumi; Aoshima, Noriyuki; Iwade, Shinji; Okano, Takeshi	N-Heptane containing 5 ppm H <sub>2</sub> O used as solvent.
JP 08239418 A2	02-Mar-95	17-Sep-96	Araki, Yoshitake; Nakamura, Hirofumi; Aoshima, Noriyuki; Iwade, Shinji; Okano, Takeshi	Manufacture of alpha-olefin oligomers with chromium catalyst recycling.
JP 08245429 A2	10-Mar-95	24-Sep-96	Araki, Yoshitake; Nakamura, Hirofumi; Aoshima, Noriyuki; Okano, Takeshi; Namba, Yoshiaki Araki, Yoshitake; Aoshima, Noriyuki; Okano, Takeshi	Manufacture of alpha-olefin oligomers in the presence of chromium-based catalysts. Hydrogen used in the reactor to produce a fine particle polymer.
JP 08245430 A2	14-Mar-95	24-Sep-96	Araki, Yoshitake; Nakamura, Hirofumi; Aoshima, Noriyuki; Okano, Takeshi; Iwade, Shinji; Namba, Yoshiaki	Manufacture of alpha-olefin oligomers using chromium-based catalysts. Acid or alkali solutions to remove polymer.
JP 08245431 A2	14-Mar-95	24-Sep-96	Araki, Yoshitake; Nakamura, Hirofumi; Aoshima, Noriyuki; Okano, Takeshi; Iwade, Shinji; Namba, Yoshiaki	Manufacture of alpha-olefin oligomers using chromium-based catalysts. Solid acids to remove catalyst components.
JP 08283330 A2	18-Apr-95	29-Oct-96	Araki, Yoshitake; Nakamura, Hirofumi; Ishikawa, Kyo; Tsuboi, Akio	Manufacture of alpha-olefin oligomers using chromium-based catalysts. Oxidizing gases to remove catalysts components.
JP 08283332 A2	18-Apr-95	29-Oct-96	Araki, Yoshitake; Nakamura, Hirofumi; Ishikawa, Kyo; Tsuboi, Akio	Manufacture of alpha-olefin oligomers using chromium-based catalysts by a compact process. Removed polymers by phase separation and catalyst by distillation.
JP 08301921 A2	09-May-95	19-Nov-96	Araki, Yoshitake; Nakamura, Hirofumi; Aoshima, Noriyuki; Okano, Takeshi; Iwade, Shinji	Manufacture of alpha-olefin oligomers using chromium-based catalysts by a compact process. Separates catalyst and polymer by distillation.
JP 08301922 A2	09-May-95	19-Nov-96	Araki, Yoshitake; Nakamura, Hirofumi; Aoshima, Noriyuki; Okano, Takeshi; Iwade, Shinji	Manufacture of alpha-olefin oligomers using chromium-based catalysts. Insoluble acids added to heterogenize the catalyst.
JP 08301923 A2	09-May-95	19-Nov-96	Araki, Yoshitake; Nakamura, Hirofumi; Aoshima, Noriyuki; Okano, Takeshi; Iwade, Shinji	Manufacture of alpha-olefin oligomers using chromium-based catalysts. Catalyst removed with sodium carbonate.
JP 08301924 A2	09-May-95	19-Nov-96	Araki, Yoshitake; Nakamura, Hirofumi; Aoshima, Noriyuki; Okano, Takeshi; Iwade, Shinji	Manufacture of alpha-olefin oligomers using chromium-based catalysts. Catalyst removed with reducing agents.
				Manufacture of alpha-olefin oligomers using chromium-based catalysts.

JP 08301925 A2	09-May-95	19-Nov-96	Araki, Yoshitake; Aoshima, Noryuki; Okano, Takeshi; Iwade, Shinji; Namba, Yoshiaki	Manufacture of alpha-olefin oligomers using chromium-based catalysts.
JP 09012627 A2	28-Jun-95	14-Jan-97	Araki, Yoshitake; Nakamura, Hirotumi; Iwade, Shinji; Namba, Yoshiaki; Okano, Takeshi	Manufacture of low-molecular -weight alpha-olefin polymers using chromium-based catalysts.
JP 09143213 A2	27-Nov-95	03-Jun-97	Araki, Yoshitake; Nakamura, Hirotumi; Iwade, Shinji; Namba, Yoshiaki; Okano, Takeshi Urata; Hisao; Nishimura, Sugio; Aoshima, Noriyuki	Manufacture of alpha-olefin oligomers with easy separation from catalysts and high yield and selectivity. Contacting ethylene with pyrrole and chloro compound without Cr and Al cpd present.
JP 09176228 A2	21-Dec-95	08-Jul-97	Araki, Yoshitake; Nakamura, Hirotumi; Iwade, Shinji; Namba, Yoshiaki; Okano, Takeshi Urata; Hisao; Aoshima, Noriyuki; Takahara, Jun; Nishimura, Sugio	Manufacture of alpha-olefin polymers with low polymerization degree in the presence of chromium-based catalysts
JP 09188634 A2	08-Jan-96	22-Jul-97	Araki, Yoshitake; Nakamura, Hirotumi; Namba, Yoshiaki; Okano, Takeshi Urata; Hisao; Aoshima; Takayuki, Takeshi	Preparation of alpha-olefin oligomers
JP 09194400 A2	18-Jan-96	29-Jul-97	Araki, Yoshitake; Nakamura, Hirotumi; Namba, Yoshiaki; Okano, Takeshi Urata; Hisao; Aoshima; Takayuki, Takeshi	Preparation of alpha-olefin oligomers by using chromium-containing catalysts.
JP 10036433 A2	29-Jul-96	10-Feb-98	Araki, Yoshitake; Nakamura, Hirotumi; Namba, Yoshiaki; Okano, Takeshi Urata; Hisao; Aoshima; Keishi, Nishimura, Sugio	Storage of catalyst for oligomerization of alpha-olefin
JP 10036435 A2	29-Jul-96	10-Feb-98	Araki, Yoshitake; Nakamura, Atsufumi; Namba, Yoshiaki; Okano, Takeshi Urata; Hisao; Aoshima; Keishi, Nishimura, Sugio	Preparation of alpha-olefin oligomers. Title oligomers are prepared in semibatch or continuous process in solvents by using Cr catalyst which are prepared by treating Cr comds, pyrrol compounds alkylaluminum compounds and halo containing compounds in alpha-olefin free organic solvents....
JP 10045634 A2	07-Aug-96	17-Feb-98	Araki, Yoshitake; Nakamura, Atsufumi; Namba, Yoshiaki; Okano, Takeshi Urata; Hisao; Aoshima; Keishi, Nishimura, Sugio	Preparation of alpha-olefin oligomers , e.g. 1-hexene, using chromium catalysts. In continuous preparation of alpha-olefin oligomers such as 1-hexene by oligomerizing alpha-olefins such as ethylene using a catalyst system containing (a) Cr compounds, (b) amines, amines and imides, and (c) alkylaluminum compounds. (a), (b) and (c) and alpha olefins are fed so that (b)/(a) and (c)/(a) molar ratios in the reaction zone at the start of reaction are larger than those in the steady state, respectively....
JP 10045638	30-Jul-96	17-Feb-98	Araki, Yoshitake; Ishikawa, Takeshi; Kyo, Shii; Nakamura, Hirofumi	Preparation of 1-hexene by trimerization of ethylene. 1-Hexene (I) is prepared by continuously feeding ethylene (II) to a reactor containing solvents having b.p. higher than that of I in the presence of Cr catalysts under pressure, discharging gas containing I and II, and separating II from the gas to recover I.... The method reduces the cost for distillation to recover I from the reaction mixture II and heptane solutions of catalyst.... =The reaction mixture was also continuously discharged by small portions for recovering I.

				<b>Preparation of alpha-olefin oligomers without their isomerization and byproduct formation.</b> In the title method comprising oligomerization of alpha-olefins in the presence of Cr-based catalyst and solvents in a reactor, supply of a part or a whole of the reaction solution to a degassing tower to remove unreacted alpha-olefins, subsequently transfer of the reaction solution from the degassing tower to a distillation tower, and recovery of thus obtained alpha-olefin oligomers as a distillates. The temperature of the reaction solution is kept at 100-150C during the process lines from the outlet of the reactor to the inlet of the distillation tower and the retention time of the reaction solution from the degassing tower to the product distillation tower is regulated within 1 hour. Thus, ethylene was oligomerized in the presence of ... to give 1-hexene with a catalytic activity 55,556 g hexene / g Cr, no isomerizatin and no polyethylene decomposition in the product as a byproduct.
JP 10045833 A2	30-Jul-96	17-Feb-98	Araki, Yoshitake; Nakamura, Atsufumi; Nishimura, Sugio; Okano, Takeshi	
				<b>Preparation of alpha-olefin oligomers with high productivity in tank containers with high thermal conductivity.</b> Alpha-olefins are oligomerized using Cr-type catalysts in containers having inner tanks, whose outer walls are equipped with partition plates placed in parallel at a certain distance and set up vertically against the walls. The top ends of the plates are covered with outer strips to form passages for heat medium, i.e. temperature-controlling element and the strips face to the inner walls of the containers...775,000 g/g Cr with 0.10 wt% polyethylene formation.
JP 10087517 A2	07-Apr-98	11-Sep-96	Nakamura, Hiroyumi	<b>Preparation of 1-hexene from ethylene in a loop reactor.</b> 1-hexene is prepared by circulating a mixture containing ethylene and Cr-based catalysts in a loop reactor. Formation of polyethylene is effectively prevented by this method. Ethylene, heptane solution of Cr(II) 2-ethylhexanoate, and heptane solution containing 2,5-dimethylpyrrole, Et3Si, and Cl3CCl3 were continuously supplied to a loop reactor and the ethylene was trimerized at 80C and 35 Kg/cm2 to give 780,000 g hexene/g Cr with 0.08 wt% polyethylene formation.
JP 10087518 A2	18-Sep-96	07-Apr-98	Araki, Yoshitake; Nakamura, Hiroyumi	

JP 10218799 A2	13-Feb-97	18-Aug-98	Araki, Yoshitake; Nakamura, Hirofumi	<p><b>Preparation of alpha-olefin oligomers.</b> Title oligomers are prepared using catalysts containing (a) carboxylic acid Cr salts containing 5-10 wt% free carboxylic acids, (b) N-containing compounds chosen from amines, amides and imides and (c) alkylaluminum compounds. Ethylene was oligomerized using a catalyst comprising 2,5-dimethylpyrrole, Et<sub>3</sub>Al, Cl<sub>3</sub>CCl<sub>3</sub>, and Cr(III) 2-ethylhexanoate (containing 1.8 wt% free acid) in n-heptane at 120C under 50 kg/cm<sup>2</sup> for 30 minutes to give a product containing 98.5 wt% C6 fraction containing 99.3 wt% 1-hexene.</p>
JP 11060511 A2	25-Aug-97	02-Mar-99	Araki, Yoshitake; Nakamura, Hirofumi	<p><b>Preparation of alpha-olefin oligomers in circulation reactor for scale deposition prevention.</b> Alpha-olefin oligomers are continuously prepared using Cr catalysts and a reactor connected with a heat exchanger through a circuit in which the reaction mixtures circulate. The flow rates per hour of the reaction mixtures circulating through the circuit are 3-10 times the volume of the reaction mixtures in the reactor, an the temperature of coolants in the heat exchanger is 100 to T-5, where T is the reaction temperature. Thus, ethylene was continuously fed into a circulation reactor and polymerized at 140 and reaction mixture volume 1.5m<sup>3</sup> in heptane containing 2,5-dimethylpyrrole, Et<sub>3</sub>Al, hexachloroethane, and Cr(III) 2-ethylhexanoate, while the reaction mixture was circulated through the circuit at 10.5 m<sup>3</sup>/hr and cooled with steam at 120C. Scale deposition in the reactor and heat exchanger is completely suppressed.</p>
JP 11060626 A2	02-Mar-99	26-Aug-97	Araki, Yoshitake; Nakamura, Hirofumi	<p><b>Continuous manufacture of low-molecular-weight alpha-olefin polymers with high yield using chromium catalysts.</b> In manufacture of the alpha-olefin polymer using Cr-containing catalysts, each catalyst component is successively supplied at &lt;1 mole/L through nozzles having several outlets. Thus, ethylene was polymerized in the presence of 2,5-dimethylpyrrole, Et<sub>3</sub>Al, Cl<sub>3</sub>CCl<sub>3</sub>, and Cr 2-ethylhexanoate to give a polymer with catalytic activity 800,000 g hexene/g Cr.</p>

JP 10007595 A2	17-Jun-96	13-Jan-98	Okuri, Motohiro; Aoyama, Takamitsu; Yamamoto, Toshihiko; Mitsumura, Eishi; Koie, Hiroshi	Preparation of 1-hexene from ethylene with chromium catalysts. Maleimide used. Deactivation and removal of the catalyst with water.	None
JP 10007594 A2	17-Jun-96	13-Jan-98	Okuri, Motohiro; Aoyama, Takamitsu; Yamamoto, Toshihiko; Mitsumura, Eishi; Koie, Hiroshi	Preparation of 1-hexene from ethylene with chromium catalysts. Maleimide used. Deactivation greater than 1 but less than 3 moles /mole of Cr.	None
JP 10007593 A2	17-Jun-96	13-Jan-98	Mimura, Hideyuki; Aoyama, Takamitsu; Yamamoto, Toshihiko; Oguri, Motohiro; Koie, Hiroshi	Preparation of 1-hexene from ethylene with chromium catalysts. Maleimide used. Deactivation with 2-ethylhexanol.	None
JP 09268135 A2	02-Apr-96	14-Oct-97	Mimura, Hideyuki; Aoyama, Takamitsu; Yamamoto, Toshihiko; Oguri, Motohiro; Koie, Yasuyuki	Process for preparation of 1-hexene by trimerization of ethylene using chromium catalysts. Maleamide used	None
JP 09268134 A2	02-Apr-96	14-Oct-97	Mimura, Hideyuki; Aoyama, Takamitsu; Yamamoto, Toshihiko; Oguri, Motohiro; Koie, Yasuyuki	A method for production of 1-hexene by trimerization of ethylene.	None
JP 09268133 A2	02-Apr-96	14-Oct-97	Okuri, Motohiro; Yamamoto, Toshihiko; Aoyama, Takamitsu; Yamamoto, Koie, Yasuyuki	A method for production of 1-hexene by trimerization of ethylene.	None
JP 09262480 A2	29-Mar-96	07-Oct-97	Mimura, Hideyuki Koie, Yasuyuki	Aluminoxane-chromium-imide catalysts for polymerization of olefins with low polymerization degree.	None
JP 09194524 A2	03-Apr-96	29-Jul-97	Okuri, Motohiro; Yamamoto, Toshihiko; Aoyama, Takamitsu; Yamamoto, Koie, Yasuyuki	Olefin oligomerization catalysts and efficient oligomerization of ethylene to 1-hexene using the same. Used N-(trimethylsilyl)maleimide.	None
JP 09176229 A2	03-Apr-96	08-Jul-97	Aoyama, Takamitsu; Mimura, Hideyuki; Yamamoto, Toshihiko; Okuri, Motohiro; Koie, Yasuyuki	Chromium-, alkylmetal compound-, and imide-containing catalysts and oligomerization of olefins using them.	None
JP 09087318 A2	27-Sep-95	31-Mar-97	Okuri, Motohiro; Aoyama, Takamitsu; Mimura, Hideyuki Koie, Yasuyuki	Catalysts for low degree olefin polymerization.	None
JP 09040710 A2	28-Jul-95	10-Feb-97	Okuri, Motohiro; Aoyama, Takamitsu; Mimura, Hideyuki Koie, Yasuyuki	Ethylene oligomerization catalysts and preparation of linear alpha-olefins by using them.	None
JP 08325317 A2	01-Jun-95	10-Dec-96	Okuri, Motohiro; Aoyama, Takamitsu; Mimura, Hideyuki Koie, Yasuyuki	Catalysts for oligomerization of olefins and oligomerization of olefins using them.	None

JP 08325318 A2	01-Jun-95	10-Dec-96	Okuri, Motohiro; Aoyama, Takamitsu; Mimura, Hideyuki Koie, Yasuyuki	Catalysts for oligomerization of olefins and oligomerization of olefins using them. Used B(C6F5)3	None
JP 08325319 A2	01-Jun-95	10-Dec-96	Okuri, Motohiro; Aoyama, Takamitsu; Mimura, Hideyuki Koie, Yasuyuki	Catalysts for oligomerization of olefins and oligomerization of olefins using them.	None